U.S. DEPARTMENT OF COMMERCE
National Technical Information Service

PB-260 016

FISCAL YEAR 1964 ACCOMPLISHMENTS AND FISCAL YEAR 1965 WORK PLANS

PUBLIC HEALTH SERVICE, CHICAGO, ILLINOIS

1964

PB 260 016

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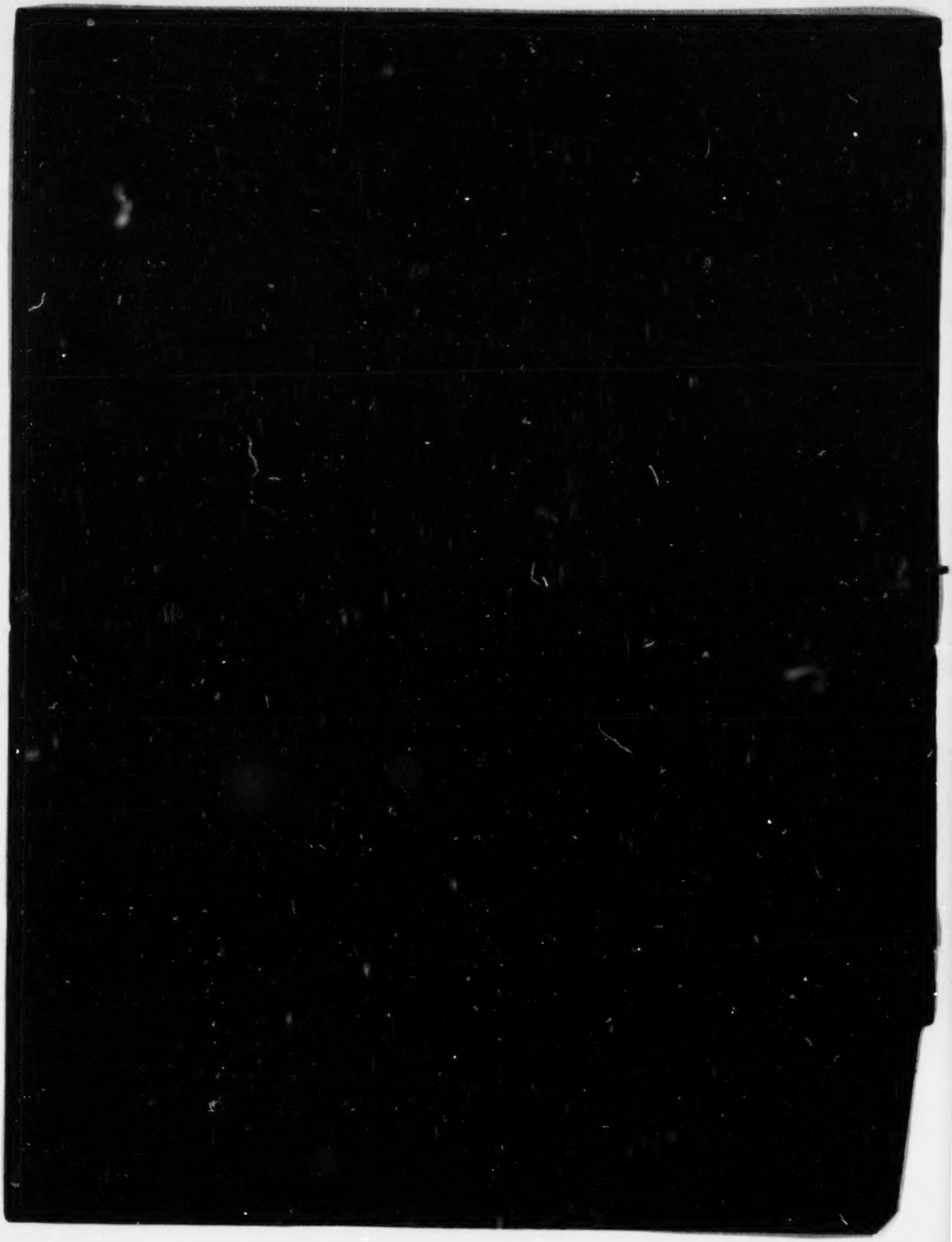

BIBLIOGRAPHIC DATA SHEET	1. Report No.	2.	3. Recipient's Accession No. PB-260 016
4. Title and Subtitle Fiscal Year 1964 Accomplishments and Fiscal Year 1965 Work Plans			5. Report Date 1964 6.
7. Author(s)			8. Performing Organization Rept. No.
9. Performing Organization Name and Address Public Health Service, Chicago, Ill. Div. of Water Supply and Pollution Control.			10. Project/Task/Work Unit No. 11. Contract/Grant No.
12. Sponsoring Organization Name and Address			13. Type of Report & Period Covered Annual rept. 14.

15. Supplementary Notes

16. Abstracts

The roles of Illinois, Indiana, Michigan, Ohio, and Wisconsin in a cooperative water pollution control program are reported. Topics covered in this paper include: why water pollution control is needed in this region; construction grants; water resources; International Joint Commission activities; Detroit River-Lake Erie Project; Twin Cities-Upper Mississippi River Project; Great Lakes-Illinois River Basins Project; Upper Mississippi River Basin Study; Ohio River Basin Project; enforcement; and organization.

17. Key Words and Document Analysis. 17a. Descriptors

17b. Identifiers/Open-Ended Terms

Illinois
Ohio
Indiana
Wisconsin
State agencies
Municipalities

*Water pollution sampling
*Water pollution control
Water quality
Detroit River
Lake Erie
Great Lakes
Water resources
Construction

Mississippi River
Illinois River
Ohio River
*River basins

17c. COSATI Field/Group 13B

18. Availability Statement	19. Security Class (This Report) UNCLASSIFIED	21. No. of Pages 65
	20. Security Class (This Page) UNCLASSIFIED	22. Price

ANNUAL REPORT

FISCAL YEAR 1964 ACCOMPLISHMENTS

AND

FISCAL YEAR 1965 WORK PLANS

U. S. Department of Health, Education, and Welfare
Public Health Service
Division of Water Supply and Pollution Control

Region V
Chicago, Illinois

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PROGRESS

and

PLANS

Illinois - Indiara - Michigan - Ohio - and Wisconsin - these are the states that comprise Region V with which this report is concerned. The Division of Water Supply and Pollution Control is fortunate to be allied with these states in a program for clean water. Each of them has a vigorous program for water pollution control which is clearly reflected in the progress of the Federal Water Supply and Pollution Control Program within this region. Without the excellent cooperation afforded by the states our job would be infinitely more difficult.

Continued progress requires periodic appraisals. This report is one not only of progress in 1964 by the Division of Water Supply and Pollution Control in Region V, but also of future plans -- plans for the Fiscal Year of 1965. Each of the various sections and projects of our Regional program are reporting to you on their accomplishments of the past year and their plans for the coming year.

Each plan was reviewed and approved with the implicit knowledge that progressive planning must be dynamic and sensitive to the ever-changing conditions and demands imposed upon the Program as the result of the expanding population and economy.

This then is a foundation document, the Annual Report of Progress and Plans. It is hoped that some of the pride of accomplishment and enthusiasm for the work ahead that went into the composition of this report will serve to stimulate support for the vital program of water pollution control.

H. W. Poston
Regional Program Director
Water Supply & Pollution Control
Region V

WATER POLLUTION CONTROL

WHY IT IS NEEDED IN REGION V

Water has become the Nation's number one natural resource concern---a direct result of the dynamic age in which we live, work, and play. Our national population, presently 193 million, will soar to over 230 million by 1980. The demands for usable water are growing at an even faster rate than population. Water right now is the most used raw material in the Nation's industrial plants. Irrigation on our farm lands is claiming an ever-increasing amount. In the past ten years, swimming as a popular pastime has doubled. Attendance at municipal beaches has increased 50 per cent. Boating has tripled. Fishing has increased sevenfold.

By 1980, it is estimated, we will be using all of our dependable fresh water supply. If this supply is to serve all the purposes for which water is needed, the same water must be used over and over again. This will require effective water resources management in terms of both quantity and quality.

The problems, work and needs in Region V duplicate more or less the national pollution picture. Since we have so much more fresh water than other regions, we may also have more uses and more problems and more need for an effective water pollution control program.

The Region has over 7 million sportsmen, over 20 per cent of the estimated national total. These 4,583,000 fishermen and 2,538,000 hunters represent better than three sportsmen in every ten households. More than 1,500,000 outboard motors, over 24 per cent of the Nation's total, are being used in our five-state area.

The Ohio and upper Mississippi Rivers, together with four of the five Great Lakes, form the general boundaries of Region V. Contained here is 6.67 per cent of the land area and 20 per cent of the population of the United States. Over 20 per cent of the Nation's metropolitan areas are within or adjacent to our boundary waters. Chicago, Detroit, St. Louis, Cleveland, and Minneapolis-St. Paul, five of the fourteen largest metropolitan complexes, are situated on these important inland waterways. Our exploding population is concentrated in urban areas and is constantly sprawling outward. In any urban sprawl situation of this type, with its inherent complexities, the problem of water pollution must be faced. We surely know that sewage treatment works construction in these metropolitan complexes has to keep pace with the over-all problems presented. In our Region alone, there is a backlog of municipal waste treatment involving grant eligible construction of over $100 million.

In terms of boundary waters responsibilities, Federal and State studies for many years have been concerned primarily with the conservation, and navigation. For example, the Ohio and Mississippi Rivers have been highly developed for navigation. Studies are currently underway to increase the minimum depth from 9 to 12 feet. A navigation project to further modernize the Ohio, estimated to cost over $600 million, is now in progress. On our Mississippi boundary water, the commercial traffic has grown over 9 times in the last 20 years. Recreational traffic has shown an equally impressive gain. In addition to direct navigational benefits, all types of outdoors recreation have been enhanced. This planning demonstrates the concept of increasing and conserving the amount of water available for use. Our operation involves the concept of proper water quality for all legitimate uses.

The States in Region V have had active water pollution control programs for many years. As an example of progress in this Region, 95 per cent of the municipal population on the Ohio River now has sewage treatment facilities in operation or under construction. Less than one per cent of the population was serviced 15 years ago. The impact the construction grants provision of the Federal Water Pollution Control Act and the Accelerated Public Works Act have had in Region V is best demonstrated by a look at the record as of the end of F. Y. 1964. Eight hundred thirty-one projects had received Federal grants amounting to $86 million. These grants had supported one-half billion dollars in eligible project costs. Benefits resulting from water pollution abatement have accrued to public, industrial, and livestock water supplies, to agriculture, and to the general public from the standpoint of public health, recreation, and aesthetic values. Whatever has been accomplished, however, provides no basis for complacency.

The backlog of construction needs is being attacked at a continually increasing pace. The dollar value of construction has increased nearly four-fold in the past decade. The Accelerated Public Works Program, begun in the fall of 1962, has provided tremendous impetus to the construction of sewage treatment works in economically depressed areas of this Region. Nearly $14 million of APW funds have been granted in support of approximately $32 million in eligible construction costs. President Johnson's proposed Appalachia Program, if enacted into law, would provide additional impetus for much needed sewage treatment plants in communities in 20 counties in Southeastern Ohio which would otherwise not be able to finance such facilities. In addition to the present backlog of known needs, present and future needs, not now identified, will be established by comprehensive projects, enforcement actions, and water resources studies which are a part of the Region V program. Continued vigorous construction programs for water pollution control facilities, and other pollution control measures, will be needed to enhance the welfare of the people of Region V.

During Fiscal Year 1964 Region V gave technical assistance at the request of a number of elected officials. For example, a report was prepared for Congressman Madden on pollution of Cedar Lake in Indiana, and another report was prepared for Congressman McClory on the algae nuisance in the Fox Chain of Lakes in Illinois. Governor Reynolds of Wisconsin was assisted in investigation of pulp mill pollution of the Oconto River. Upon specific invitation, Governor Reynolds' office and the Committee on Water Pollution were assisted in a technical problem involving a method of waste treatment for a planned fiberboard plant at Superior, in an economically depressed area.

There was a time when pollution abatement seemed far in the future. Now the trend is reversing, and informed people are becoming more keenly aware of the need for abatement. Increasing public awareness was emphasized when Chicago's Mayor Daley, before a Hearing of the House Subcommittee on Natural Resources and Power held in Chicago, gave first public recognition to the pollution danger from the south end of Lake Michigan. Likewise it was significant that President Johnson, in an address at Ann Arbor, remarked on hazards in the environment - air, water, and food. The late President Kennedy made the formal announcement of the Conference on Pollution of the Upper Mississippi River, and both Governor Rolvaag of Minnesota and Governor Reynolds of Wisconsin made unprecedented appearances before the Conference to give strong positive support to the need for effective pollution control action.

Our Regional problem, oversimplifying a complex situation, is one of making a relatively fixed water supply meet a rapidly increasing demand by providing the right quantity and quality of water where it is needed. The following work plan indicates how we are implementing the Federal Water Pollution Control Act to meet the challenge of effective water pollution control.

CONSTRUCTION GRANTS
FOR SEWAGE TREATMENT WORKS
PROGRAM ACCOMPLISHMENTS - FISCAL YEAR 1964

Authorization for Activities

The great volume of wastes discharged from municipal sewers is one of the major causes of water pollution. To help control this source of pollution, Section 6 of the Federal Water Pollution Control Act provides for grants to municipalities to assist in financing the construction of local sewage treatment plants. To this end, the Region V Construction Grants Program has enjoyed another banner year.

Municipalities Helped

Approximately 150 grants, including regular grants and Accelerated Public Works Program grants, were made to municipalities needing new or improved sewage treatment plants during Fiscal Year 1964. These grants, ranging in size from a few thousand dollars to hundreds of thousands of dollars, totaled roughly $19 million. The grants will generate about $65 million in project construction. The sizes of the projects varied from those required by towns under a thousand population to the requirements of such metropolitan centers as Detroit and Milwaukee.

Accelerated Public Works Program (APW)

Greater impetus in community waste treatment construction came with the enactment of the Public Works Acceleration Act in 1962. Its purpose is to provide immediate useful work to the unemployed in economically depressed areas through the construction of needed public works. With the continuation of this program in the past year, 60 APW grants were made for a total of $4.5 million, or close to half of the total project costs of $9.7 million.

Streams Improved

By having another 120 construction grants sewage treatment plants placed in operation, an additiinal thousand miles of streams were improved. This raises the total miles of stream improved to over six thousand since the beginning of the program in 1956.

Project Payment Inspections

While handling an average of more than 300 active projects, over 350 field payment inspections were made at the actual project sites. Although the responsibilities connected with field inspections were increased with the addition of such requirements as checking for compliance with nondiscrimination in employment, streamlining of the inspection process kept the inspection time on a par with previous years.

Plant Performance Audits

After a treatment plant is completed, the key to its success is proper maintenance and operation. To assess the adequacy of maintenance and operation on grant-assisted plants, performance audits of all plants in operation for more than one year were launched in July of 1963. A five-year backlog of completed plants resulted in what will be an unprecedented 345 plant performance audits in a concentrated one year period. Attempts have been made to work as closely as possible with State and local personnel on these important audits. In any event, results of the audits are made available to concerned State and local agencies for further action where necessary.

Staff Training

To keep the staff abreast of changing program emphasis and requirements, periodic staff conferences were initiated. These also proved effective in providing a forum for the exchange of ideas pointed toward more efficient administration.

CONSTRUCTION GRANTS
FOR SEWAGE TREATMENT WORKS
WORK PLAN - FISCAL YEAR 1965

The Municipal Water Pollution Problem

The rapid growth of population, coupled with a continuing movement to both large and small urban centers, is causing a steady increase in wastes discharged from municipal sewers. These same municipal wastes are one of the principal reasons for the national water pollution problem.

Every city, town, and village is responsible for taking care of its sewage and wastes. To financially assist municipalities in meeting this responsibility, a construction grants provision was included in the Federal Water Pollution Control Act. In the words of a report issued by the Congress in 1956, the purpose of this financial aid is to "accelerate local programs of treatment works construction by providing an incentive to act now to clean up the waters of the country."

Regional Outlook for Fiscal Year 1965

On the basis of present projections for Fiscal Year 1965, it is expected that the same amount of WPC construction grant funds will be available as in 1964. Although complete use of all grant funds is anticipated because of the sizeable known regional backlog of construction needs, a reduction in the total number of projects appears likely. This tapering off became evident in the past year as larger grants were made to a fewer number of municipalities. This trend is developing for several reasons. Chief among these reasons is the fact that three Region V States--Wisconsin, Illinois, and Ohio--have satisfied the $250,000 grant limitation imposed by the 1961 amendments to the Act. The result is that the number of grants in excess of $250,000 will certainly increase more in the future. Making an accuract prediction of the total number of grant projects is difficult, but they should be somewhere in the vicinity of 80.

This projection does not anticipate any Fiscal Year 1965 Congressional action that may occur in the area of increased Accelerated Public Works assistance or in the Appalachia Program. Such action would completely re-align any projections.

The full impact of the large number of project grants made in Fiscal Year 1963, when some 185 grants were offered, should result in making Fiscal Year 1965 the busiest year ever in terms of field payment inspections. Field payment inspections should total more than 400, or 15 percent higher than any previous year.

Plant Performance Audits

The increase in payment inspections will be more than offset by a significant drop in the number of performance audits at treatment plants that have been in operation for at least a year. This important new activity, now going into its second year, will result in approximately one-hundred visits to completed plants, or about a third as many visits as during the first year when a huge backlog was fairly well liquidated.

Staff Improvement

Continued emphasis will be placed upon improving overall staff performance to the highest possible level. Periodic internal staff meetings and training sessions will be maintained to keep the staff abreast of new and changing program areas.

Additional professional growth will be afforded by occasional across-the-board work assignments involving problems not normally associated with the construction grants program.

Information Activities

This program's unique opportunity to present pollution information to lay and professional people will have a high priority. Informational opportunities are considerably enhanced now because each project is not only personally visited at least once during construction, but the performance audit provides an additional visit. The staff is expected and encouraged to convey useful information to municipal officials, consulting engineers, and others while discharging normal duties.

Selected Public Health Service publications will be distributed where they will do the most good. For example, recent publications relating to the construction cost index will be explained and made available to consulting engineers.

Requested appearances at plant dedications and similar functions are considered to be an important element of the Section's public awareness program.

Construction Backlog

The short-range treatment plant construction backlog, as reported by the States, consists of 160 projects costing well over $100 million. Grant funds of almost $20 million will be needed to meet these immediate needs. This is 50 percent more than the grant funds expected to be available in Fiscal Year 1965.

How many unknown, potential grants projects exist is hard to estimate. The backlog totals cited here represent only reported, identifiable projects and do not include special programs such as Appalachia and APW.

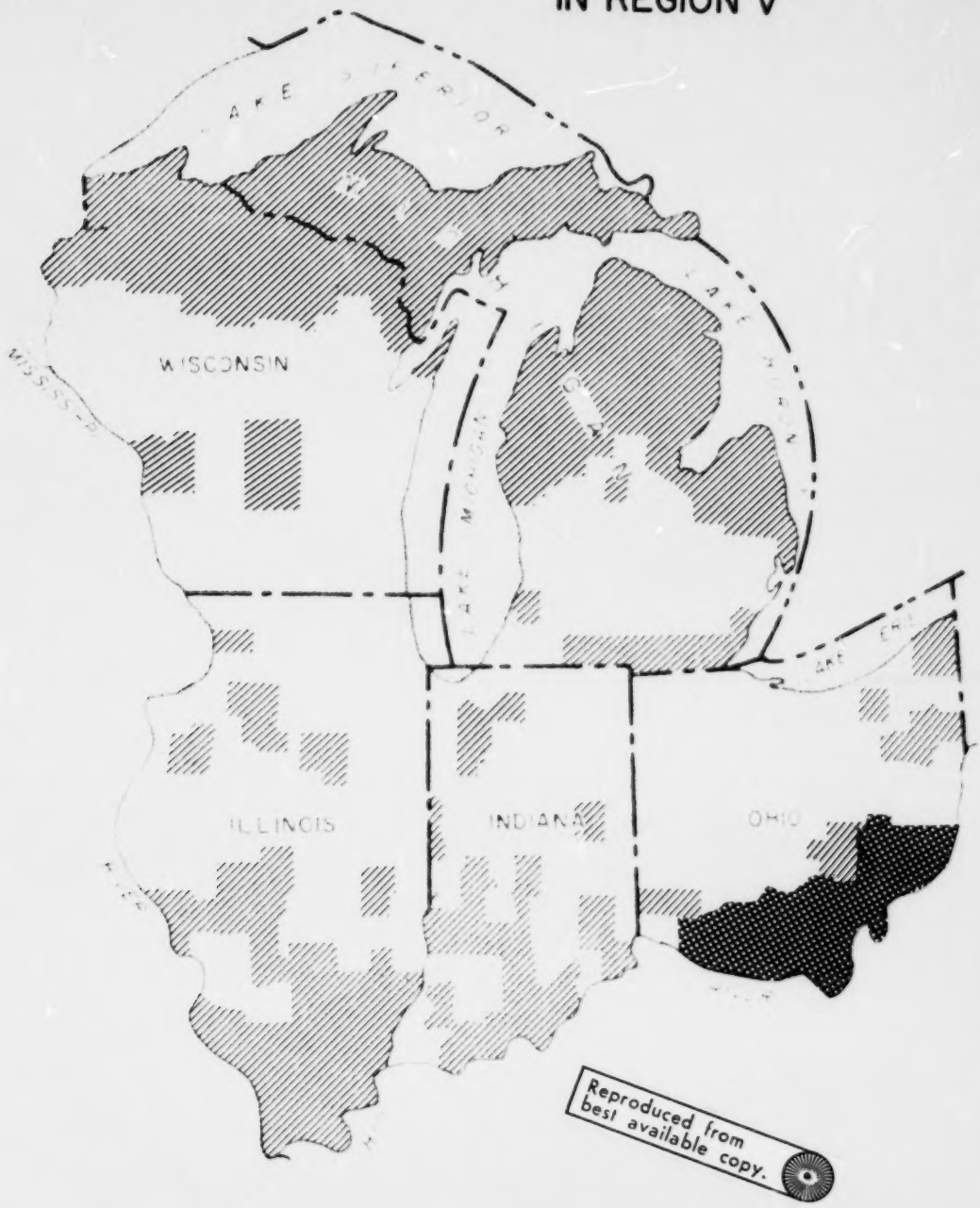
Appalachia Program

The President's Program on Poverty could make a significant dent into the known sewage treatment works needs backlog in economically-depressed southeastern Ohio in particular. This area, which totals 20 Ohio counties, is included in the proposed Appalachia Program that has been presented to the Congress. There are at least 61 potential projects in this depressed region. A dollar value for these projects is not yet available. The extent of Federal financing would be far in excess of that provided under the Federal Water Pollution Control Act or the Accelerated Public Works Act. If the program materializes, it could result in considerable construction activity in southeastern Ohio. Special attention will be given to any breakthroughs in this or similar geographical areas.

Accelerated Public Works Program

The Accelerated Public Works Program, as the Appalachia Program would if enacted into law, provides for grants well in excess of the normal 30 percent authorized under the regular construction grants program. Although more than 120 APW grants have been made in the last two years, a sizeable known backlog still exists that cannot now be satisfied solely because of the lack of available APW funds. The current backlog consists of 85 projects needing grants of $7.2 million to support total project costs of $14.8 million. Some of these projects may be satisfied under the regular construction program, but the real upsurge in construction activity in APW areas will undoubtedly be evidenced, as in the past, only with APW-type financing.

ECONOMICALLY DEPRESSED AREAS IN REGION V



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LEGEND –

DESIGNATED AS AREA REDEVELOPMENT AREA BY DEPARTMENT OF COMMERCE – ELIGIBLE FOR ACCELERATED PUBLIC WORKS FUNDS.

PART OF APPALACHIAN REGION – WOULD BENEFIT UNDER APPALACHIAN REGIONAL DEVELOPMENT ACT OF 1964 ALSO, ELIGIBLE ACCELERATED PUBLIC WORKS FUNDS.

FIGURE 2

WATER RESOURCES

PROGRAM ACCOMPLISHMENTS - FISCAL YEAR 1964

The objective of the Water Resources Section is to protect the water supplies of the Region in order to insure that future demands for water can be met, both in quantity and quality. Authorization for the program is contained not only in the Federal Water Pollution Control Act (P.L. 660) but in sections of laws which govern other Federal Agencies. Two examples of this are the Federal Watershed Protection and Flood Prevention Act (P.L. 566), and the Eligibility for Financial Assistance in Natural Disasters (P.L. 875). Accomplishments in the Water Resources Section have been made in accordance with program objectives except for a number of new commitments which were made after the F.Y. 1964 program plan was prepared. The Water Resources Program has been carried out, for the most part. in the three areas of River Basin Studies, Basic Data Collection, and Technical Assistance.

Water Quality Studies

Water Quality Studies carried out included work done on a reimbursable basis for the Corps of Engineers, and programs connected with PHS Comprehensive River Basin Studies.

The Water Quality-Recreation Project at the Geist Reservoir, Indianapolis, completed its second year of operation. This operation included sampling and analysis to obtain water quality baseline data. The polluting effect of recreational activity on the reservoir will then be measured from this baseline. The eventual effect of this study will be to set intelligent limits for recreation on water supply reservoirs.

Water Resources Reports were completed for the Corps of Engineers on the Huron River, Michigan; Lake Erie-Ohio River Canal; Embarrass River Illinois; and Patoka River and Clifty Creek, Indiana. These reports are prepared to provide the Corps of Engineers with information concerning water users and pollution sources which might have an effect on their flood control reservoirs. The data from part of these studies will later be made part of PHS Comprehensive Study Reports

Basic Data Collection

Activity in the Basic Data area is generally determined by headquarters. During Fiscal Year 1964, the Inventory of Municipal Water Supply Facilities for Cities of 25,000 population and over was completed. All States in the Region were contacted personally to discuss a data form and the method of operation to assemble a national inventory of industrial waste discharges. Data on contract awards for water and sewage utilities was forwarded from headquarters to the States for verification.

Two visits were made to each of the Water Pollution Surveillance System Stations. These visits served to review operations, make equipment repairs, and advise station personnel concerning the techniques and analysis. In addition, arrangements were completed for moving one station from East Liverpool, Ohio to Toronto, Ohio.

Technical Assistance

Technical assistance on water pollution problems was rendered to several state and federal agencies.

Assessment of flood damage to water and sewage utilities in Ohio and Indiana was completed for the Office of Emergency Planning following the floods of March 1964. Approximately 20 communities in Indiana qualified for a total of $92,500 in federal assistance. In Ohio, about 15 communities submitted applications for assistance, but the total amount of money is yet unknown.

Seventeen summary reports and six reviews of final work plans were completed for the Soil Conservation Service Watershed Protection and Flood Prevention Program. These reports were made to advise the Soil Conservation Service of potential water pollution problems which might affect the watershed development plan. Most of the summary reports were for watersheds in Indiana which had eight areas under consideration. Illinois was next in line with three, and Michigan, Ohio and Wisconsin each had two. Final work plans were reviewed for two watersheds in each of the States of Indiana, Ohio and Wisconsin.

A new activity this year involved reviews of license applications to the Federal Power Commission for hydroelectric dams. Over 40 dams, ponds and tailwaters were surveyed for water pollution problems caused by the presence or operation of the dam. Most of these projects were located in the tourist and vacation areas of Michigan (23) and Wisconsin (15).

In addition, technical assistance was given the U. S. Forest Service and the U. S. Fish and Wildlife Service. A skeleton water quality monitoring program was planned for the Pere Marquette Watershed in the Manistee National Forest, and a problem of detergent foaming was investigated at the Shiawassee National Wildlife Refuge, Saginaw, Michigan.

WATER RESOURCES

WORK PLAN - FISCAL YEAR 1965

Water Resources Planning

This portion of the program determines storage requirements for municipal and industrial water supply and for stream flow regulation for water quality control. Studies of this type are needed in many areas of the Region, and resulting reservoirs constructed by the Corps of Engineers and the Soil Conservation Service for multi-purpose uses will benefit many thousands of people by providing stored water which would not otherwise be available.

The Big Muddy River Basin in southern Illinois will be studied, beginning in F. Y. 1965. This project will evaluate several reservoir sites, and, if authorized for construction, costs are estimated at about $10,000,000.

The Saline River Basin in southern Illinois is being evaluated for a proposed study for multi-purpose reservoirs, and this basin, if developed, will represent about $8,000,000 of construction cost.

There are approximately 65 Watershed Protection and Flood Prevention projects in Indiana and 40 in Michigan that are active in the study, evaluation or construction stage. The number of active projects in Illinois, Ohio and Wisconsin is not known. Each project may receive a maximum federal participation of $250,000.

Water Pollution Surveillance System

Water quality sampling stations are located at 17 points within the Region and 10 additional stations along the boundaries of the Region are located on the Ohio and Mississippi Rivers. These stations fill a continuous need for information regarding quality of river and Great Lakes waters, and further aid in alerting us to significant changes in water quality. This is a service that aids in the protection of public health, and fish and wildlife.

Frequent visits to these stations will be made to assure continuous operation and evaluation of techniques and analyses by station personnel.

National Industrial Waste Inventory

An inventory form and a plan of action have been prepared for a proposed survey that will evaluate the effects of pollution created by industrial waste discharges to the rivers and lakes of the nation. Preliminary contacts have been made with the States of Region V to determine their opinions regarding this task. Favorable comments were received.

It is anticipated that this inventory will be conducted during F.Y. 1965 and will provide information which will fill a need for determining the total picture of industrial waste pollution, and will be a means also of determining necessary action in order to reduce or, if possible, eliminate the detrimental effects on our waters.

Water Quality-Recreation Project

This project, now in its third year of operation, is an effort to evaluate potential pollution of many types related to water-oriented recreation, and the effects of such pollution on the quality of a drinking water supply. The results of this study are needed in many areas of the country, since information of this type is not available, and will be of great assistance in determining the extent that recreation should be permitted in water supply reservoirs.

Work plans for F.Y. 1965 include special studies to aid in interpretation of trends developed in F.Y. 1964, and additional intensive studies of plankton, aquatic weeds, nutrients, land runoff, flow patterns, light penetration and other significant factors for a better understanding of water quality changes.

Hydroelectric Dam License Application Reviews

Cooperation is being given to the Federal Power Commission in the evaluation of new or intensified pollution associated with the existence of hydroelectric installations. Site investigations are required to determine the presence or absence of pollution conditions. It is anticipated that there will be 50 or more requests from the Federal Power Commission, primarily in Wisconsin and Michigan, during F.Y. 1965.

The need for such evaluations is apparent when it is realized that most of the plants are located on streams and in areas of heavy recreational use, and, under these circumstances, protection of public health and aquatic life is at stake.

Emergency Planning

Technical assistance is requested by the Office of Emergency Planning whenever disaster areas are declared due to floods or other national or natural disasters. Damages to public utilities, particularly water and sewage, are assessed to determine items eligible for supplemental federal assistance.

Plans for F. Y. 1965 include necessary final inspections of flood damage areas in central Indiana and Ohio. The extent of damages in these areas is not known at this time. To date $92,295 has been approved for repairs to water and sewage utilities in southern Indiana.

The President's Committee on Equal Employment Opportunities

A staff member has been requested to serve as a member of one team in a effort to evaluate compliance with executive orders regarding hiring and firing practices by contractors and unions where federal funds are involved in construction projects.

This project has been given high priority and will undoubtedly have a significant bearing on employment practices throughout the nation.

WATER RESOURCES ACTIVITIES

LEGEND

- HYDRO-ELECTRIC PLANTS
- WATER POLLUTION SURVEILANCE SYSTEM
- WATER RESOURCE STUDIES
- FLOOD DISASTER AREAS

FIGURE 3

INTERNATIONAL JOINT CCMMISSION - DETROIT FIELD UNIT

PROGRAM ACCOMPLISHMENTS - FISCAL YEAR 1964

Authorization and Activity

The United States and Canada express their concern about the character and quality of their boundary water through the International Joint Commission.

The International Joint Commission was created in 1912 following a treaty between the United States and Canada in 1909. The investigation and prevention of boundary waters pollution is one of the responsibilities assigned to the commission.

The Commission has delegated the responsibility for monitoring the United States portion of the connecting waters between Lake Huron and Lake Erie, and between Lake Superior and Lake Huron, to the Public Health Service, which staffs and operates the Detroit Field Surveillance Unit within the program of the Division of Water Supply and Pollution Control, Region V.

Boundary Water Sampling Program

During Fiscal Year 1964, the major part of the International Joint Commission Detroit Field Unit's activities continued to be boundary water sampling. Through most of the year, sampling was centered in the region from the head of the St. Clair River to the mouth of the Detroit River. A two-week field survey was conducted on the St. Marys River at Sault Ste. Marie in August.

In all of the boundary water investigation activities the principal analyses for pollution evaluation were total coliforms, phenols, pH, and chloride. In special instances, dissolved oxygen, nitrogen, ammonia, fecal streptococci, and fecal coliform differentiation determinations were made.

Close cooperation with the Detroit River-Lake Erie Project was maintained on river surveillance and sampling in the Detroit River area.

Organic Chemicals Monitoring

The Unit continued its operation of five carbon filter sampling stations located at four water treatment plants along the St. Clair and Detroit Rivers, and at the St. Clair Flats Coast Guard Station.

The samples obtained at these installations were analyzed by the Laboratory of the Service's GLIRBP Project in Chicago. This arrangement was found necessary because of the limited facilities at the Unit's laboratory.

Special Studies

The Unit participated in a stormwater overflow study of the Detroit area. Its part in the survey entailed the operation of two automatic stormwater overflow sampling stations which were established in the City of Detroit's stormwater relief system. Samples that were collected during the overflow periods were analyzed for total coliforms, coliform differentiation, and fecal streptococci.

Reports

Semi-annual reports were presented to the IJC Technical Advisory Board in August and February. These contained results of the sampling activities on the boundary water ranges, the carbon filter program, and other surveillance activities during the six month reporting period.

Close liaison has been maintained with the Michigan Water Resources Commission so that reports on spills and other water quality variations could be investigated immediately. The Michigan Water Resources Commission has aided the Unit materially by providing it with three part-time aides to assist in sampling and laboratory analysis.

INTERNATIONAL JOINT COMMISSION - DETROIT FIELD UNIT

WORK PLAN - FISCAL YEAR 1965

General Plan

The IJC Detroit Field Unit will continue to be primarily concerned with the monitoring of the boundary waters from the St. Marys River to the mouth of the Detroit River.

This monitoring will be undertaken through a regular sampling program with laboratory analyses for specific pollutants such as total coliform bacteria, phenols, chloride, pH, and organic compounds.

The data from the monitoring program will be evaluated to determine water quality levels and trends, and these will be reported to the Technical Advisory Board of the International Joint Commission.

Monitoring Program

The boundary water monitoring program in the Detroit River, its tributaries, and the St. Clair River will continue at approximately the same intensity as during Fiscal Year 1964. In addition, the Unit will return to the St. Marys River area in August for a two-week survey to continue the survey conducted last summer.

Operation of the five carbon adsorption organic monitoring stations along the St. Clair and Detroit Rivers will be continued. In regard to this program, an investigation will be conducted to determine the significance and quantitative limitations of the carbon adsorption technique.

Special Studies

The Unit will continue its participation in the stormwater overflow study of the Detroit area which was begun during Fiscal Year 1964.

Corrective Action

Attempts will be made to locate the source of any spills that occur, and also to investigate all reports of water quality disturbances in an effort to locate their sources.

DETROIT RIVER - LAKE ERIE PROJECT

PROGRAM ACCOMPLISHMENTS - FISCAL YEAR 1964

Authorization and Activities

The Detroit River-Lake Erie Project was created as a result of recommendations made at the first session of a Joint Federal-State of Michigan Enforcement Conference on Pollution of the Navigable Waters of the Detroit River, Lake Erie and their tributaries within the State of Michigan. This conference was held on March 27 and 28, 1962, in Detroit, Michigan, under the authority of Section 8 of the Federal Water Pollution Control Act (FWPCA) as amended (33 U.S.C. 466 et seq.). The conference resulted from a request by the Honorable John B. Swainson, then Governor of Michigan, for assistance in identifying methods for correcting the sources of pollution going into the Detroit River and subsequently into Lake Erie.

The basic objectives of the Project developed from conclusions reached by the conferees are:

a. To determine the extent of pollution in the United States portion of the Detroit River and the Michigan section of Lake Erie.

b. To investigate the principal sources of pollution in this area and the contribution from these sources.

c. To determine the effect of pollution on various water uses.

d. To prepare a plan, or plans, for improving water quality in the area.

Program Accomplishments

During Fiscal Year 1964 the major portion of field investigations and laboratory operation required to achieve the objectives of the Project were completed. Preparation of the final report was begun and plans formulated for a special surveillance program designed to provide up-to-date technical information at the next session of the Conference and recheck areas requiring additional study. The "target date" of October 1, 1964 for the completion of the final report remained unchanged as this fiscal year came to a close.

Administration

The PERT path, established early in Fiscal Year 1963 to guide Project operation, was followed during this period. All field and laboratory functions were carried out on schedule, although the scope of Project operation was increased over the level indicated in the original plan. The administrative organization of the Project changed during the latter part of Fiscal Year 1964 from one primarily designed to conduct technical field and laboratory operations to a group preparing a complex technical report containing findings, conclusions, and recommendations.

Field and Laboratory

In order to fulfill their responsibilities Project personnel collected over 25,000 samples from the Detroit River, Lake Erie, their tributaries, areas of recreational water use, and sources of domestic and industrial waste. Over 135,000 analytical determinations were performed on these samples by laboratory personnel. Intensive studies of short duration were conducted on the Detroit, Raisin, and Rouge Rivers to determine variation in water quality throughout the day. This information supplements routine sampling over a long period. Intensive surveys of all significant domestic and industrial wastes in the area were conducted jointly by the Michigan Department of Health, the Michigan Water Resources Commission, and the Public Health Service. Federal installations in the area were surveyed by Project personnel to determine the effect of their operation upon water quality. Special studies concerning biologic life, bottom deposits, and river current patterns were conducted. A special study was performed with the Michigan Department of Health to compare the quality and quantity of overflows from combined and separate storm sewers.

Public Contacts and Awareness

Public enlightenment in the southeast Michigan area in the field of water pollution control was increased by a special television documentary on water pollution featuring the activities of the Detroit Project. Following surveys performed jointly by State agencies and the PHS, industries and municipalities were requested by State regulatory agencies to increase their treatment measures and devote more time and money to the prevention of breakdowns and accidents. Even where pollution control measures by industries resulted in improved conditions since the last survey by State agencies, the industries were reminded that operation and treatment be maintained at a higher level commensurate with the growing demand for improved water quality for all uses in the Detroit River and Lake Erie.

DETROIT RIVER - LAKE ERIE PROJECT

WORK PLAN - FISCAL YEAR 1965

During Fiscal Year 1965 activities at the Detroit River-Lake Erie Project will be divided into two categories; (1) completion of the final report and (2) surveillance operation.

Final Report

The final report will be available to the conferees for their study prior to the next session of the Conference. At this meeting the findings, conclusions, and recommendations of the Project report will be discussed and, hopefully, a time schedule established for necessary pollution abatement.

The final report of the Detroit River-Lake Erie Project will be designed to meet the immediate and future needs of all the people in the area under study. It will not only point out problems and deficiencies in water pollution control and resource planning but also give answers and recommend action required to assure a continued supply of water sufficient in both quality and quantity to meet the needs of expanded population and economic growth in the area. Very likely, significant additional waste treatment works, as well as improved operation of existing facilities, will be required to meet these objectives.

Surveillance

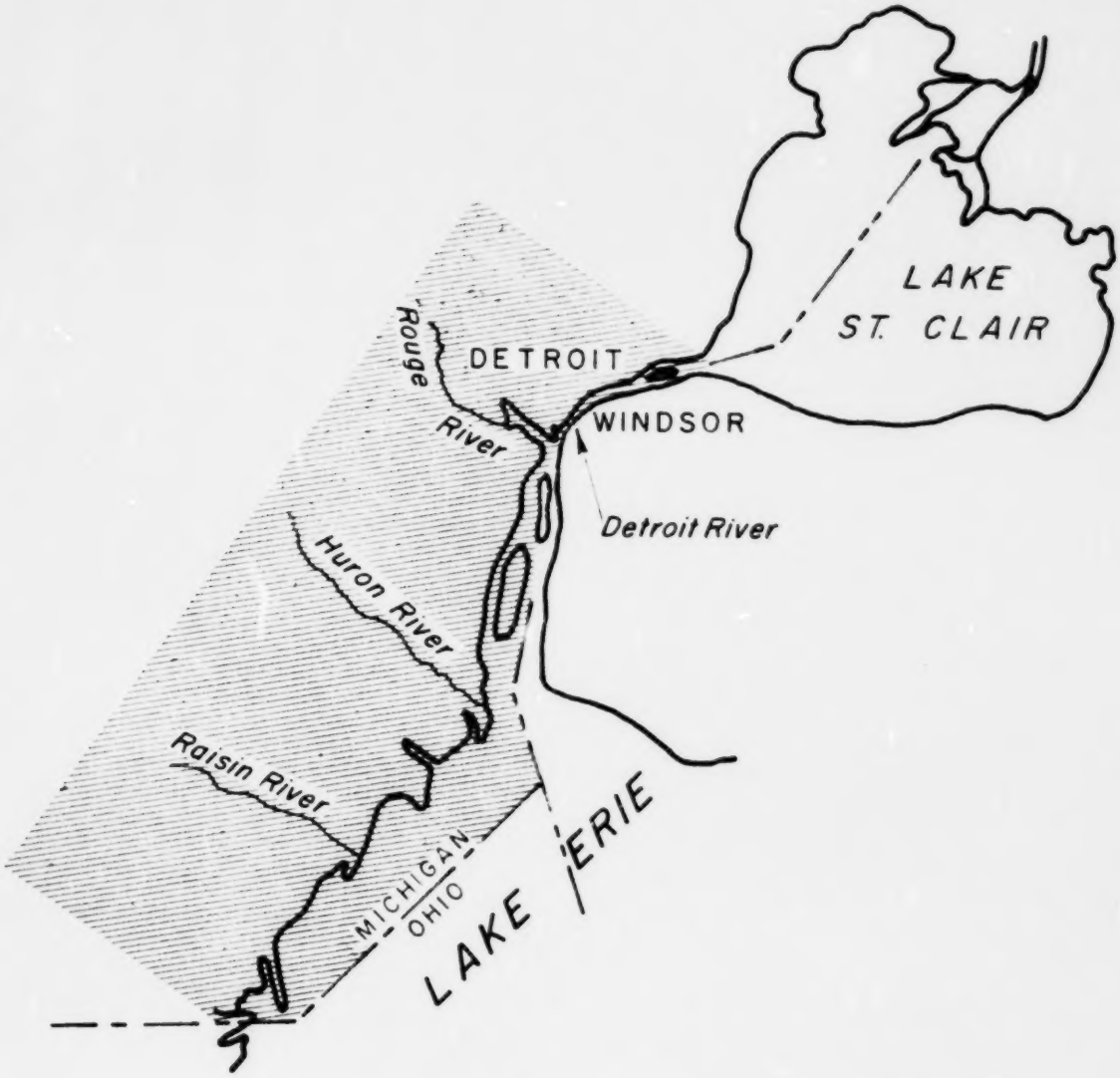
The purpose of surveillance will be to provide up-to-date water quality and waste source data at the next session of the Conference, and later to determine if the time schedule established by the conferees is satisfactorily complied with. Of course this latter function will depend directly upon the desires of the conferees. A special PERT chart has been prepared to guide operations during this and subsequent fiscal years.

Surveillance will be carried on with a greatly reduced field and laboratory staff at a constant level of operation for an undetermined period of time. Hopefully, three years will see the completion of improvements and the achievement of the desired water quality. It should be understood that the length of this operation depends entirely upon the industries and municipalities involved and could be shorter or longer, depending upon their zeal.

Activities will include sampling on a routine basis for significant chemical, bacteriological, and biological indices of pollution in the Detroit River and Lake Erie. Significant changes in water quality will be noted and reported to proper authorities. Domestic and industrial waste effluents in the area will be sampled regularly to determine changes in waste loadings affecting water quality in the river and lake.

The surveillance staff will continue PHS participation with the Michigan Department of Health in a special study in depth of the effect of overflows from combined and separate storm sewers upon water quality.

It is anticipated that coordination will be continued with the Detroit Unit of the International Joint Commission to avoid duplication of funds or effort.



DETROIT RIVER-LAKE ERIE
PROJECT

FIGURE 4

TWIN CITIES - UPPER MISSISSIPPI RIVER PROJECT

PROGRAM ACCOMPLISHMENTS - FISCAL YEAR 1964

Authorization and Activities

"ROLVAAG, REYNOLDS, ASK RIVER CLEANUP." These were the headlines the day of the first session of the joint Federal - State Conference on pollution of interstate and intrastate waters of the Upper Mississippi River and its tributaries (Wisconsin - Minnesota) held on the 7th and 8th of February in St. Paul, Minnesota. The waters considered at this conference were those of the Mississippi River and its tributaries from its junction with the Rum River at Anoka, Minnesota, through the Minneapolis - St. Paul metropolitan area to the Lake Pepin outlet above Wabasha, Minnesota, approximately 107 miles downstream.

On the basis of a written request to the Secretary of Health, Education, and Welfare from Karl F. Rolvaag, Governor of Minnesota, and from John W. Reynolds, Governor of Wisconsin, as well as on the basis of reports, surveys, or studies, the Secretary of Health, Education, and Welfare, on September 23, 1963, called a conference under the provisions of Section 8 of the Federal Water Pollution Control Act. A formal public announcement of the conference and the initiation of a pollution study was made by the late President, John F. Kennedy, in a speech at Ashland, Wisconsin, on September 24, 1963.

The above headlines, as well as others in the Twin Cities, were a result of an unprecedented appearance at an enforcement conference of both Governor Rolvaag and Governor Reynolds, who not only participated but gave strong positive support to the need for effective pollution control action using Federal, State and local resources.

The basic objectives of the Twin Cities-Upper Mississippi River Project developed from conclusions reached by the seven conferees are:

a. To determine the extent of pollution in both the inter and intrastate waters of the study area.

b. To investigate the principal sources of pollution in this area and the contribution from these sources.

c. To determine the effect of pollution on the numerous water uses.

d. To prepare a plan or plans for improving water quality in the area.

Program Accomplishments

In spite of the Fiscal Year 1964 being half over by the time the Project received official status, adequate facilities were obtained and the Project was staffed to the designated levels. Other accomplishments included the procurement of all equipment and supplies for office, field and laboratory; training of personnel; and establishment of required Project procedures.

Administration

The Project, guided by a Director in the Regional Office and a Resident Director in Minneapolis, called upon several specialists throughout the year as its plans and activities were formulated. These consultants lent their talents to the development of special and unique studies required to fulfill the Project's objectives.

Of several methods for maintaining schedules on the study, one was the early development of an outline of the Project's final report. This outline, together with suitable activity sequence and available manpower charts, limit the gathering of superfluous data.

The Project established a Committee consisting of representatives of various disciplines from both Federal and State Governments as well as private interests. The purpose of this Committee will be to disseminate information about the Project. Working relationships have been established with both the Minnesota and Wisconsin Departments of Health, and positive assistance in many endeavors has already been received.

Activities

The Laboratory Section of the Project, as of June 1, moved from temporary quarters into newly renovated space comprising approximately 4500 square feet. The larger facilities allowed a significant increase in field activities.

During the latter half of Fiscal Year 1964 the Field Operations Section concerned itself principally with an extensive survey of the Minnesota River in anticipation of providing the State of Minnesota with additional technical information on the River for scheduled hearings relative to the establishment of standards. The hearings assumed significance when several communities proposed to use the river for additional waste disposal purposes rather than develop a true metropolitan system.

TWIN CITIES - UPPER MISSISSIPPI RIVER PROJECT

WORK PLAN - FISCAL YEAR 1965

Program and Activities

Fiscal Year 1965 will be the year of greatest physical activity. To maintain the set schedule, the Project staff will be expanded to a total permanent staff of 29, the bulk of the increase occuring in the Field and Laboratory Sections.

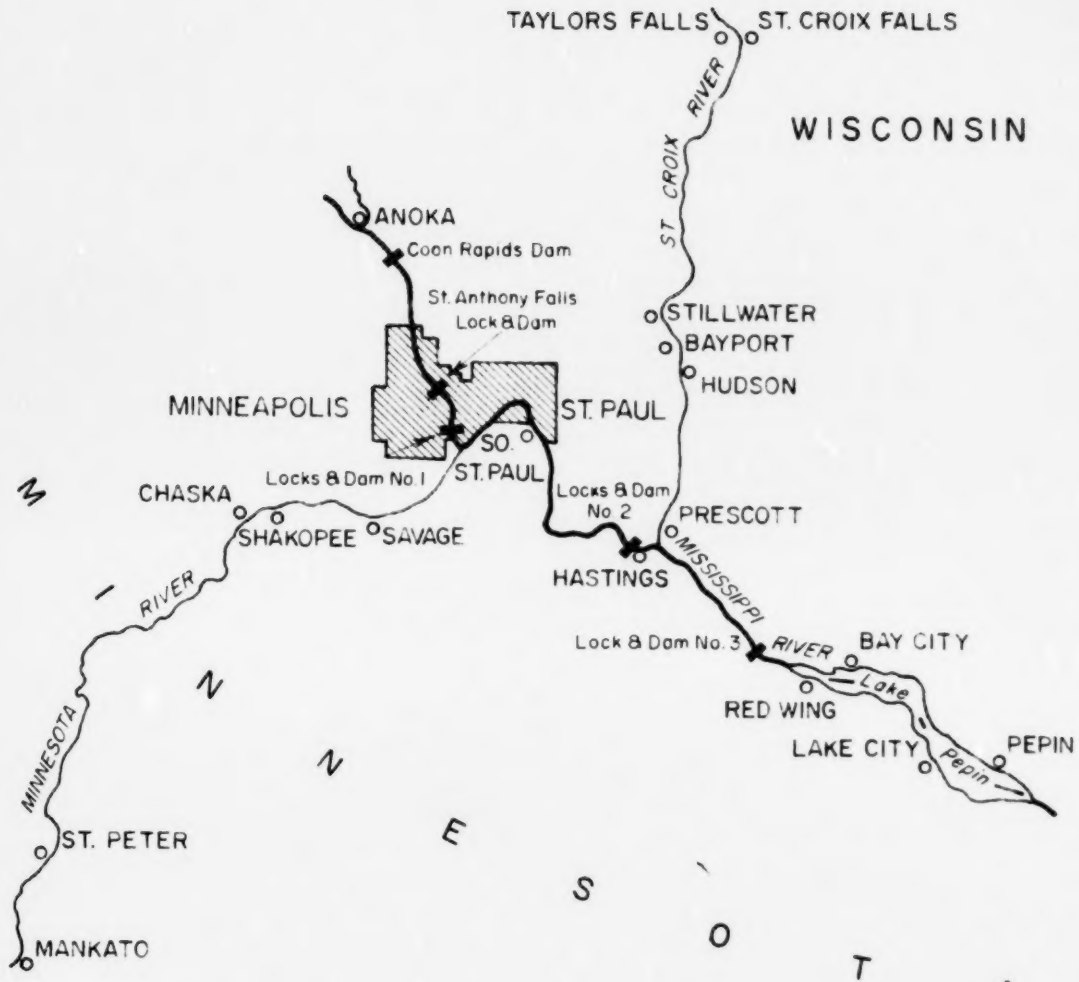
The Project will investigate the principal sources of pollution and evaluate their effect on uses of water. Two sewage treatment plants and their collecting systems will be studied intensively, since approximately 89 per cent of the population in the study area is served by these two plants. The larger plant is undergoing a 22.8 million dollar expansion program, and the other plant has contracted with a consulting engineer for evaluation and recommendations relative to sewage treatment. The Project will also investigate the possibility of decreasing pollution by decreasing the waste loads tributary to the treatment plants.

The Project will study oxygen relationships in the Mississippi River and the effect of waste loads and degree of treatment. Special attention will be given to sludge and the nitrogen cycle. The need, or non-need, for low flow augmentation will be evaluated.

Special investigations will include, but not be limited to, the potential effects of waste disposal to the upper pools from which the Twin Cities take their water supplies, the discharge from treatment plants of viruses and pathogenic bacteria, the effect of pollution on the taste of fish, the extent of pollution by runoff of pesticides and herbicides from farm land, and the potential danger of bulk storage areas adjacent to the rivers. Of recent concern is the decision of the Northern States Power Company to relocate a future major power plant from the shores of the Mississippi River to those of the essentially unspoiled St. Croix River. This relocation will require a reappraisal of the assimilation capacity for heat of both the Mississippi and St. Croix Rivers.

The Project will make available to the State of Minnesota data from some special investigations prior to January 1, 1965, the convening date of the next State Legislature. These data could become an important factor in the strengthening of the State's water pollution control legislation.

An important function in Fiscal Year 1965 will be to coordinate activities with the Upper Mississippi River Basin Comprehensive Study. This is of utmost importance so that all future information required may be obtained without a later duplication of field activity.



TWIN CITIES-
UPPER MISSISSIPPI RIVER
PROJECT

FIGURE 5

GREAT LAKES - ILLINOIS RIVER BASINS PROJECT

PROGRAM ACCOMPLISHMENTS - FISCAL YEAR 1964

Authorization and Goals

The Great Lakes-Illinois River Basins Project, in cooperation with State agencies and others, is preparing a comprehensive program for eliminating or reducing pollution in the Great Lakes and Illinois River and tributaries thereof.

The general objectives of the Project have been described as follows:

a. A determination of the causes of water pollution and the effects of such pollution on the quality of water resources and on beneficial uses.

b. The development of agreements on the desired beneficial uses and the water quality required to accommodate those uses.

c. The development of water quality control measures to achieve the desired objectives, including the establishment of a time table for their accomplishment.

Illinois River Basin

For the Illinois River Basin the work of the water quality work groups of the Project's Technical Committee was completed and translated into proposed goals for the guidance of the pollution control program. Analysis of the combination of measures, and alternative means, for achieving quality goals is being completed, together with estimated costs of implementing the major improvement measures recommended. Drafts of the final report have been prepared and are now undergoing review. The comprehensive report will identify existing water pollution problems; spot the locations of problem areas; appraise the nature and gravity of problems, the water uses affected and the extent of detriment to those uses; and recommend steps to be taken for the abatement of pollution and prevention of future problems as growth occurs. It will also help to guide future research and field investigations in those areas in which additional knowledge is needed in the complex and rapidly-changing water environment. Highlights of some of the findings of the Illinois River Basin study are given below.

Waste Treatment Needs

An appraisal of the adequacy of existing municipal waste treatment shows that some 169 community systems need capital improvements in treatment facilities. These needs break down as follows: 112 communities

(mostly small towns) now provide little or no treatment, and should have treatment plants; 28 communities need to effect a higher degree of treatment than is presently provided; and the remaining 29 plants are too small to handle present-day loads. It is estimated that about 58 million dollars in capital construction will be required to bring all existing municipal plants in the Basin up to a desirable standard of capability, for present loads. Additional construction needed to accommodate future growth projected over the next 20 years would add to this capital cost an average of about 20 million dollars a year. It is to be noted that these cost figures are high only because the populations involved are large - some 9 million people now and growing daily. On a per capita basis, the costs cited are equivalent to about 3 or 4 dollars a year per person. This is not, of course, the only element in total costs of waste collection, treatment, and ultimate disposal.

In addition to municipal treatment facilities, many industrial plants discharging directly to watercourses need additions, improvements, or enlargement in treatment plants. Outstanding examples are in the Peoria-Pekin area, where some 17 million dollars' worth of construction is needed, and in the Joliet area, where presently needed plant construction for industries would cost about 8 million.

Flow Regulation Needs

Even after a high degree of treatment, the effluent from typical treatment plants may still degrade receiving waters to the detriment of other water uses unless consideration is given to appropriate methods for ultimate disposal and dispersal of the residue. For water-borne wastes, this calls for an analysis of the assimilative capacity of receiving streams, of the dilution provided by natural stream flows under specified drought conditions, and of the feasibility of modifying the flow regime by regulation with upstream storage reservoirs or importation of water. At Chicago itself - which not only dominates the Basin picture in regard to population, industrial activity, and waste residues but is situated at the headwaters of the drainage system - additional water for dilution is obtained by diversion from Lake Michigan. Availability os such water is limited by legal constraints imposed by the U. S. Supreme Court - at present to an annual average of 1,500 cubic feet per second. In its testimony for the Supreme Court in current litigation on diversion, completed last year, the Project recommended that the allowed diversion not be reduced.

Unfortunately, the Illinois River drainage basin is characterized by a scarcity of suitable sites for reservoir storage projects, due to flat topography and the porosity of its underlying glacial deposits.

Fortunately, on the other hand, analysis shows that the natural flows of many of the smaller tributaries should be sufficient to assimilate the relatively small waste residues projected, assuming adequate treatment to be provided. Exceptions to this general rule are the tributaries flowing through the Northeast Illinois Metropolitan Area, and the Sangamon River. On the latter, the Corps of Engineers has an authorized Federal multiple-purpose project located upstream from the city of Decatur. The Project is making estimates of flow regulation needed in the Sangamon River which might be provided by that reservoir.

Research Needs

Outstanding among the problems calling for further research and field study are 1) oxygen relationships in streams, 2) over-fertilization of lakes and streams, and 3) better ways to evaluate social and economic consequences of improving (or failing to improve) water quality.

The Illinois River Basin studies have clearly pointed up the need for more thorough evaluation of all processes which affect oxygen relationships in streams. Analyses reveal that severe drops in oxygen levels are often not accompanied by expected reduction in biochemical oxygen demand (BOD). It is possible that the presence of significant amounts of ammonia in sewage treatment plant effluents may, in many cases, be the principal cause of the oxygen depression. Other effects not satisfactorily defined are bottom sludge deposits, algae respiration, and the BOD of dead algae. More and more emphasis is being given to the use of mathematical models for predicting stream quality under various conditions, both present and future. Perfection of this technique requires the best possible knowledge and definition of the biochemical processes involved.

While a complete absence of the nutrients that support aquatic life is not desirable, over-enrichment of the aquatic environment is equally undesirable. Prolific growths of algae and other aquatic organisms constitute a severe detriment to the water environment and its uses. Municipal, and some industrial, wastes are rich in nitrates and phosphate, the principal nutrients - and conventional treatment practices do not remove these constituents effectively. The consequeces of over-enrichment are especially bad in sluggish streams and in shallow lakes, both of which abound in the Illinois River and Great Lakes regions. Enough in known to alleviate the problem in some degree, but much more needs to be known - and research must provide the answers.

Although it is not anticipated that judgment will ever be eliminated as the final step to decisions about the goals of a water quality improvement program, knowledge that would permit better analysis of socio-economic factors is highly desired as an aid to decision-makers. Unlike many goods and services, the value of clean water is not established in the market place.

Lake Michigan Basin

The major portion of the year's field activities was centered in the Lake Michigan Basin. In the Lake, grid patterns were mapped to sample representative sections, and sampling was extended to much greater depths in these bodies of water. Two large lake boats, fitted out with laboratory and living quarters, were used. Most intensive sampling was along the shores, in populous areas, industrial areas, and mouths of tributaries. It was found necessary to sample more extensively throughout the major tributary streams than was originally planned. The St. Joseph, Grand, Kalamazoo, and Fox Rivers were given special attention.

In addition to the water quality sampling in the lakes, the Oceanographic studies of lake currents, meteorology, rainfall, evaporation, and cloud effects were conducted. Lake currents must be studied and mass water movements in all sectors must be known to establish dispersion patterns of wastes discharged to the lakes and to be able to predict the movement of these pollutants into areas of beaches, water intakes, etc. The lake current studies of the Project are the most extensive ever performed in lakes and they represent a pioneering scientific venture in the field of water supply and pollution control.

Lake Erie Basin

The comprehensive study of Lake Erie and its tributaries is being conducted by the Field Station located at Cleveland, Ohio, with direction and support from Project headquarters at Chicago. Details of that study are reported in a subsequent section.

Lake Huron Basin

Planning and preliminary organization is well advanced for a Lake Huron Field Station. A study plan was prepared and published by the Project's Chicago Headquarters, and a work schedule is nearly complete.

The Lake Huron Field Station and laboratory will be located at Grosse Ile, Michigan, on the Detroit River in Navy quarters made available to the Detroit River-Lake Erie Enforcement Project.

Lake Ontario Basin

Planning, procurement of supplies, staffing, and preliminary organization was underway in F.Y. 1964. The Lake Ontario Field Station and laboratory will be located at Rochester, New York.

Cooperative Studies

The Caesar Creek and East Fork Reservoir Studies in the Little Miami River Basin; the Whiteoak Creek Study; and, the Licking River Basin Study, all within Ohio, were completed and submitted to the Corps of Engineers. A preliminary draft of the Tonawanda Creek Reservoir Study report has been completed. These studies comprise a determination of the needs for, and value of, storage in Federal reservoirs for municipal and industrial water supply, and stream flow regulation for quality control.

The Project is participating in water resources studies in the Grand River Basin, Michigan and Genesee River Basin, New York. These studies were initiated by the Corps of Engineers and are being conducted on an interagency cooperative basis. The Project Director is a member of Coordinating Committees for each basin.

GREAT LAKES - ILLINOIS RIVER BASINS PROJECT

WORK PLAN - FISCAL YEAR 1965

The Illinois River Basin

In the Illinois River Basin, the publication of the Comprehensive Report is now scheduled for the early part of this fiscal year.

The Lake Michigan Basin

In the Lake Michigan Basin, completion of the first drafts of the comprehensive report is scheduled for December, 1964 and publication of the Comprehensive Report is scheduled for the end of F.Y. 1965. All field activities will have been terminated by the middle of F.Y. 1965, except for tributary studies related to Corps of Engineers needs.

The Lake Erie Basin

In this Basin, the full scale study of water quality of the Lake and its tributaries will be continued. Most of the field sampling activities will be completed by December 1964 with laboratory work, engineering evaluation and report preparation work continuing until December 1965. The Lake Erie Field Station will be assisted by personnel from Detroit in the studies of the western portion of this Basin. Lake current studies started in the spring of 1964 will continue for one full year.

A special study of the Maumee River Basin is being undertaken at the request of the Ohio Department of Health. This cooperative activity is the result of sifnificant water shortages in this Basin and will provide a comprehensive plan for maximum use of available water resources. The addition of this study to the Lake Erie Field Station program will extend its study activities into Fiscal Year 1966.

The Lake Huron Basin

In this Basin, study will begin in the fall of 1964, using the present facilities and available personnel, augmented as necessary, of the existing Detroit River-Lake Erie Enforcement Project at Grosse Ile, near Detroit, Michigan. The intensive field activities will begin in spring 1965 and continue for one year. The lake currents study will also begin in spring 1965. These studies as described in the Study Plan for the Basin, will follow the pattern already established, including intensive studies of tributary water quality, as well as water quality changes in the Lake proper.

The Lake Ontario Basin

In this Basin, efforts to procure space and facilities for this study have been started and will continue. A small staff, about five positions, is being established to prepare the space and facilities, develop operating plans, and make advance contacts. A work schedule (PERT chart) for Lake Ontario activities has been completed. Full scale field activities will be initiated in spring of 1965 and continue for one year. It is anticipated that manpower released from the Lake Erie study will be available for this study. The lake current study in Lake Ontario will begin in summer of 1964, concurrently with the Lake Erie Study, and will continue for one year. The instrumentation (current meters, etc.) from Lake Michigan will be divided between Lakes Erie and Ontario. The study program outline is similar in scope and intensity to that described for Lake Huron.

Cooperative Studies

Scheduled for completion are the Tonawanda Creek Study, New York; the Hocking River Study, Ohio; and the Sandusky River Study, Ohio.

Work will be continued on the Grand River Basin, Michigan; the Genesee River Basin, New York-Pennsylvania; and, the St. Joseph River Basin, Indiana-Michigan.

GREAT LAKES - ILLINOIS RIVER
BASINS PROJECT
WATERSHED
BOUNDARY
LAKE SUPERIOR
LAKE MICHIGAN
LAKE HURON
LAKE ERIE
LAKE ONTARIO
Georgian Bay
Duluth
MINNESOTA
WISCONSIN
ILLINOIS
INDIANA
OHIO
PENNSYLVANIA
NEW YORK
U.S.
CANADA
Milwaukee
CHICAGO
Gary
South Bend
Fort Wayne
Grand Rapids
Flint
DETROIT
Windsor
Toledo
CLEVELAND
Akron
Buffalo
Rochester
Syracuse
Mississippi River
Illinois River
LEGEND
Great Lakes & Illinois River Basin Boundary
Basin Boundary
International Boundary
State Boundary
SCALE IN MILES
0 25 50 100 150 200

FIGURE 6

GREAT LAKES - ILLINOIS RIVER BASINS PROJECT

LAKE ERIE FIELD STATION

PROGRAM ACCOMPLISHMENTS - FISCAL YEAR 1964

The compilation of the municipal water and waste inventories was completed for the New York, Pennsylvania, Ohio, and Indiana portions of the Lake Erie Basin. The industrial water and waste inventories were partially completed for the States of Indiana, Pennsylvania, and New York. The assembling of basic data continued in other fields. A literature survey of published reports concerning the past history of Lake Erie was partially completed.

The work plan for a detailed study of the Maumee River Basin was completed, and a temporary headquarters and laboratory were established at Defiance, Ohio. This study will be a cooperative program of the Public Health Service, the States of Indiana and Ohio, and local agencies.

The initial phase of the Lake Erie Basin study called for a reconnaissance of the Lake and its tributaries during the summer sampling season of 1963. This program was laid out to indicate existing conditions in the basin and also to assist in the design of the major sampling program. The reconnaissance sampling program accomplished the following:

a. A biological survey of 11 major tributaries was conducted.

b. Approximately 165 bottom samples for biological sorting and counting were collected.

c. More than 200 samples were collected from the extended range portion of Lake Erie for chemical, physical, and bacteriological analysis.

d. More than 500 samples were collected from the major harbor areas for analysis.

e. A weekly sampling program of the major tributaries was initiated in order to evaluate the total waste and water input to the Lake.

The major field sampling program for Lake Erie was started at the beginning of the 1964 summer season. This program is designed to determine the existing water quality of the lake and its tributaries, the waste assimilation capacity of the major tributaries, and the dispersion characteristics of the tributaries into the Lake, and sources of wastes.

GREAT LAKES - ILLINOIS RIVER BASINS PROJECT

LAKE ERIE FIELD STATION

WORK PLAN - FISCAL YEAR 1965

The Public Health Service, Great Lakes-Illinois River Basins Project, has the responsibility of investigating, in a relatively short time, the largest fresh water area in the world. The vastness of the investigation, with its headquarters in Chicago, required that the effort be decentralized. It was for this reason that the Lake Erie Field Station was established to conduct the Lake Erie basin portion of the investigation. This basin alone encompasses an area of nearly 35,000 square miles with a population of more than 10,000,000 persons.

The objectives of the Lake Erie basin study, like those of the entire Great Lakes Project, are to determine the present and future quality and quantity of the water resources within the basin and to develop a comprehensive program for eliminating or reducing the pollution of interstate waters and tributaries thereof.

A concentrated field sampling and measurements program was begun at the end of Fiscal Year 1964. This program will be concluded in Fiscal Year 1965. Analysis of data will continue, and the first draft of the Lake Erie Basin Comprehensive Report will be prepared. Additional investigations will be carried out, as required, throughout the year.

Special committees and work groups of interested persons will be established in each significant sub-basin of the Lake Erie basin to assist the Public Health Service in certain phases of the study.

The principal activity of the Comprehensive Planning-Engineering group will be to develop the Lake Erie Basin Comprehensive Report. This group will complete the inventory of municipal and industrial waste and water supplies, the study of pollution originating from vessels operating in Lake Erie and its harbors, the determination of the water and heat budget for the Lake, agreements on water quality goals, preliminary formulation of mathematical models for the lake and selected tributaries, an analysis of the impact of waste loads on the lake and its tributaries, an appraisal of water resources and hydrology, and initial formulation of the plan for water pollution control.

The Hydraulics staff will conduct stream flow and time of travel studies for the stream sampling program. Extensive stream measurements will be made and will include the installation of 12 temporary stream gaging stations. The staff will also install and operate flow-measuring equipment for industrial waste surveys and other special studies as required.

Field measurements of currents within the Lake will be completed. The data obtained from these measurements will be analyzed as they become available in order to determine the general circulation of the water within the main body of the Lake, and its significance for dispersion of pollutants.

The intensive chemical, bacteriological, and biological sampling program on Lake Erie and its tributaries will be continued and greatly accelerated during the sampling season. More than 85 stations in the Lake will be sampled at least four times to determine the present water quality in the main body of the Lake. Approximately 84 sampling stations at major harbor and population centers will be sampled each week in order to indicate the dispersion of waste materials into the Lake. Excluding the Maumee River Basin, seventy tributary sampling stations are in operation in selected reaches of major tributaries and are being sampled weekly to determine waste assimilation capacity and water quality.

In the Maumee River Basin, problems with quality and quantity of water are critical now. For this reason special emphasis will be placed on study of this basin in cooperation with the States of Indiana and Ohio. The resulting Comprehensive Water Pollution Control Plan will be of immediate use in providing the people and industries of the basin with sufficient and usable water.

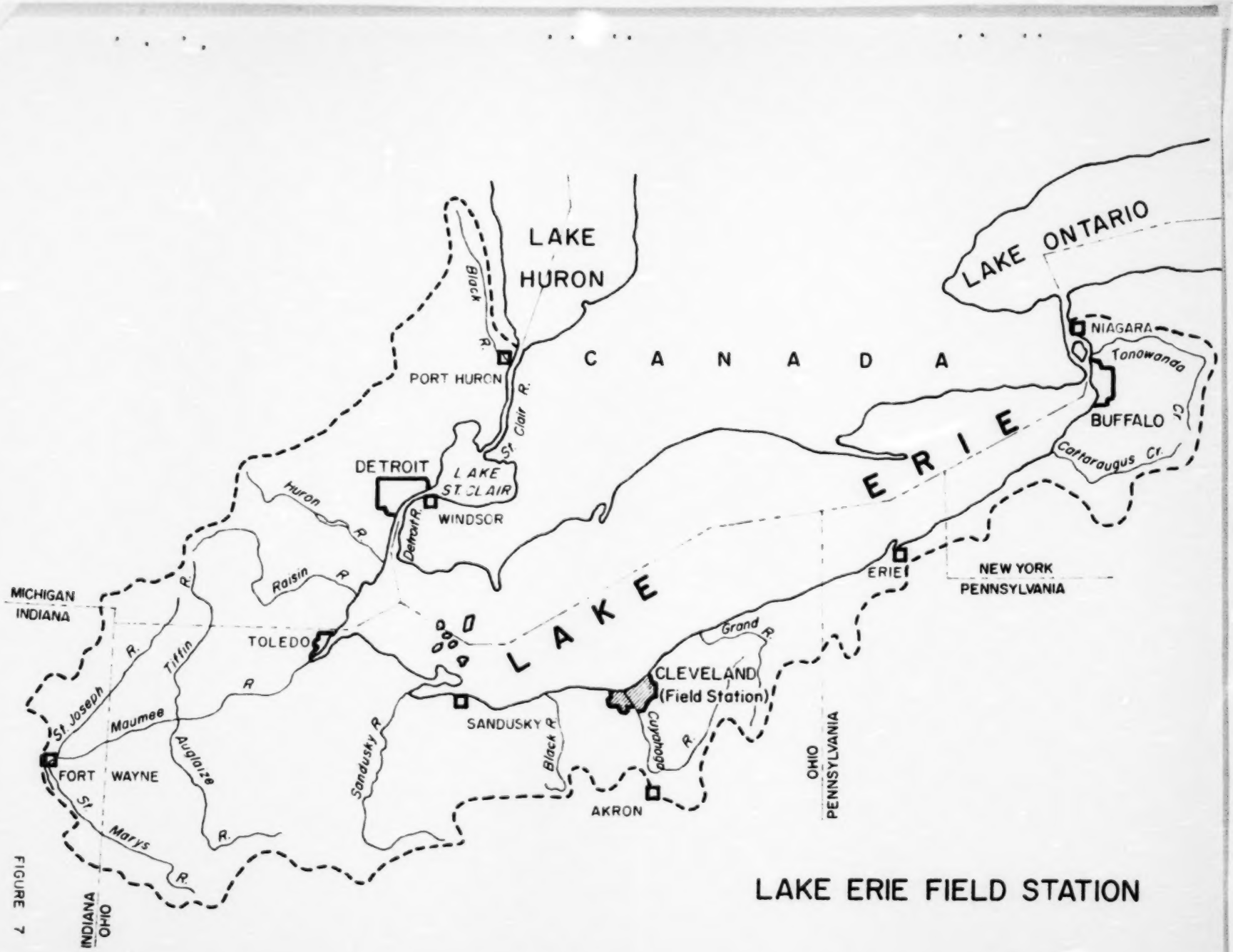


FIGURE 7

LAKE ERIE FIELD STATION

UPPER MISSISSIPPI RIVER BASIN STUDY

PROGRAM ACCOMPLISHMENTS - FISCAL YEAR 1964

Authorization and Activities

In May of 1963 the Public Health Service agreed to participate in the Type I Upper Mississippi River Comprehensive Basin Study sponsored by the Corps of Engineers under the authority received by that agency from the U. S. Senate Committee on Public Works in a resolution adopted by May 21, 1962. The Public Health Service agreement was on the basis that the work to be undertaken during Fiscal Years 1964-65 would be on a reimbursable basis. Funds in the amount of $20,000 were received from the Corps of Engineers for conducting the FY 1964 planning studies.

The Study Plan being developed by the Public Health Service provides for coordination between the Preliminary Phase investigations to be completed during Fiscal Years 1966-67 and the Intensive Phase investigations to be completed during Fiscal Years 1968-72. The Preliminary Phase investigations will provide information necessary to make preliminary estimates of the needs for storage of water for municipal and industrial water supply and pollution control. The Intensive Phase investigations will provide for the detailed studies necessary to develop a Comprehensive Water Pollution Control Program for the Upper Mississippi River Basin in accordance with the authority contained in the Federal Water Pollution Control Act, Public Law 660, 84th Congress, as amended by Public Law 87, 88th Congress.

During FY 1964 visits were made to five of the States that will participate in the Upper Mississippi River Basin studies, and conferences were held with the Federal agencies that will also participate in these studies. Meetings of the Coordinating Committee for the Type I UMRCBS and the Economics Advisory Committee were attended. Assistance also was given the Corps of Engineers in the preparation of a coordinated budget and a revision of the Plan of Investigation.

UPPER MISSISSIPPI RIVER BASIN STUDY

WORK PLAN - FISCAL YEAR 1965

The Corps of Engineers has included in its budget for FY 1965 $30,000 for reimbursement to the Public Health Service for completion of the Planning Phase Studies in the Upper Mississippi River Basin. Plans have been made by the Public Health Service for use of these funds in the following manner:

1. Completion of Study Plan for Comprehensive Water Pollution Control Program investigations.

2. Scheduling of basic data collection.

3. Collection of inventory data in selected sub-basins.

4. Preparation of specifications for equipment to be purchased for use in the UMRB Comprehensive Program investigations.

Completion of Study Plan

The Study Plan for the Upper Mississippi River Basin Comprehensive Water Pollution Control Program is scheduled for completion in November 1964. It will be in sufficient detail to enable the Project Director to complete the Preliminary Phase studies during FY 1967 and schedule the Intensive Phase studies to be started early in FY 1968. In addition, it will provide for starting the basic data collection during the latter part of FY 1965 and for completion during FY 1966. Inasmuch as the first appropriations for the comprehensive water pollution control studies in the Upper Mississippi River Basin are scheduled for FY 1967, the previous two years' work will include only planning and basic data collection. The plan includes financing of these activities through use of reimbursement and regular appropriation funds.

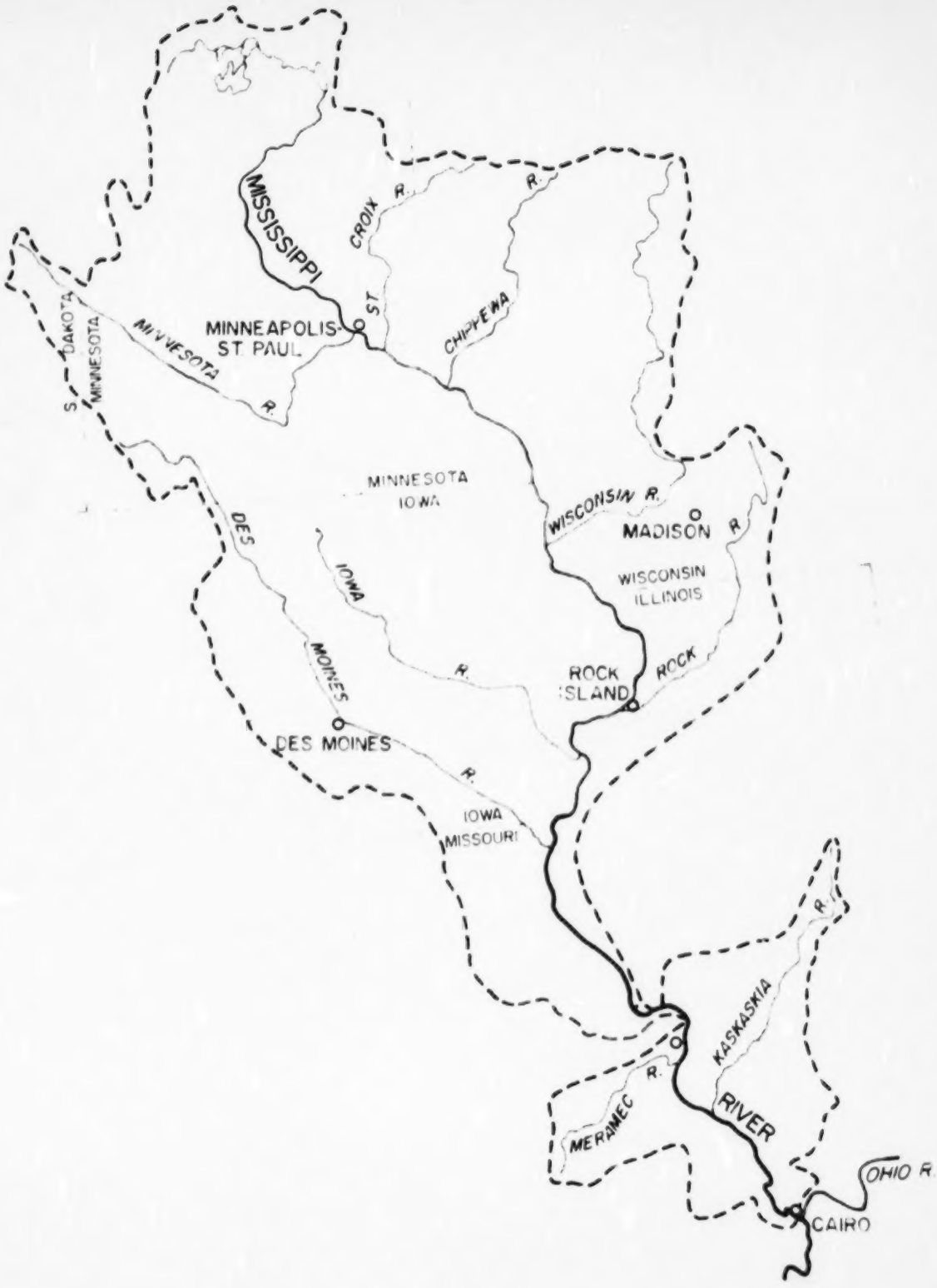
Collection of Basic Data

Following completion of the Study Plan, a schedule will be prepared for the collection of basic data in the 14 sub-basins within the Upper Mississippi River Basin study area. These basic data will include an inventory of the present municipal and industrial water uses and waterborne wastes and such information as is presently available on water quality conditions throughout the basin. A considerable portion of the inventory data is available in Public Health Service publications and State office files. However, it will probably be necessary to supplement the data available through field visits in order to complete the necessary tabulations. A limited amount of information on existing water quality conditions is available in Federal and State publications and State office files.

One additional Sanitary Engineer will be employed during FY 1965 to assist in the completion of the Study Plan, and to collect basic data in the Kaskaskia and Big Muddy River Sub-basins. In addition, he will assist in the Type II water resources study of the Big Muddy River Basin scheduled to start in FY 1965.

Specifications for Equipment to be Purchased

In order to facilitate the early start of the Comprehensive Program Studies, specifications for a mobile laboratory, other laboratory facilities, and other types of equipment will be prepared.



UPPER MISSISSIPPI RIVER BASIN STUDY

FIGURE 8

OHIO RIVER BASIN PROJECT

PROGRAM ACCOMPLISHMENTS - FISCAL YEAR 1964

Authorization

The Ohio River Basin Project was authorized by the Federal Water Pollution Control Act of 1961 as amended (P.L. 87-88). Under Section 2(a) the Secretary of Health, Education, and Welfare is directed to prepare or develop comprehensive programs for eliminating or reducing the pollution of interstate waters and tributaries thereof and improving the sanitary condition of surface and underground waters.

In the conduct of the Ohio River Basin Study, the guidelines set forth in Senate Document 97, relating to cooperation and coordination, are observed.

Organization

The Office of the Project Director is located in Cincinnati, Ohio in temporary quarters at 5555 Ridge Road. The staff consists of the Project Director, a Staff Engineer, and a secretary.

The Wheeling Field Station is located in Wheeling, West Virginia in the Methodist Building. It will have a staff of 22 people by June 30, 1964. Its area of responsibility of 53,000 square miles begins at the confluence of the Kanawha River and includes the Kanawha River Basin and all areas upstream from that basin on both sides of the Ohio River.

The Evansville Field Station is located in Evansville, Indiana in the Evansville-Vandenburg County Health Department Building. It is anticipated that it will have a staff of seven people by June 30, 1964. Its area of responsibility is the remainder of the Ohio River Basin, including the Tennessee River Basin, an area of approximately 150,000 square miles.

Accomplishments

Economic Base Study

The Economic Base Study of the Ohio River Basin is nearing completion, and the final report is expected in July, 1964. The specifications for the study were prepared jointly by Public Health Service and Corps of Engineers economists. The study was 100 per cent reimbursed by the Corps of Engineers.

Wabash River Basin Study

Work was initiated in the Wabash River Basin during F.Y. 1964. The effort was principally in support of the Corps of Engineers, Louisville District, Type 2 Study. Three specific project reports were prepared for the Corps of Engineers; i.e., the Patoka River Reservoir, the Lincoln Reservoir, and the Clifty Creek Reservoir.

Work is now in progress on the study of Big Walnut Creek Reservoir, Richland Creek Reservoir, and Spencer Reservoir. In the initial phase of the Wabash Study, contact has been made with the Soil Conservation Service, the U. S. Geological Survey, Bureau of Sport Fisheries and Wildlife, and the Indiana Department of Health. All through the initial phase, close contact has been maintained with the Corps of Engineers, Louisville District, by participation on the Coordinating Committee of the Wabash River Basin Study.

Work is in progress to obtain permanent space in Evansville through the General Services Administration.

The Wheeling Field Station has conducted field studies in the Moxahala-Johathan Creek and Sandy Creek-Nimishillen areas of Ohio. Reports on these areas will be prepared for the Huntington District Engineer office.

OHIO RIVER BASIN STUDY

WORK PLAN - FISCAL YEAR 1965

The Comprehensive Study of the Wabash River Basin is scheduled for direct appropriation funds in Fiscal Year 1965. As soon as these funds are made available, the preparation of a comprehensive program for eliminating or reducing pollution and improving the sanitary condition of surface and ground waters will be begun.

Work will continue on services requested by the Corps of Engineers. Commitments have been made to the Wabash Valley Interstate Commission to locate and describe sources of oil field brine pollution.

ENFORCEMENT

PROGRAM ACCOMPLISHMENTS - FISCAL YEAR 1964

The objectives of the Fiscal Year 1964 Work Plan for the Enforcement Program included the investigation of Federal Installations which resulted in submission of 66 reports to Washington, and the updating of several summary reports. In addition, active participation in the program of literature distribution, report dissemination, presentations of prepared talks to State, federal and local agencies and groups interested in "Clean Waters", and responsiveness to individual inquiries were all a continuing function of the Enforcement Section.

The time needed for the balance of the work plan was preempted by the more urgent activities listed below.

The Secretary of DHEW called a Conference on November 6-8, 1963 in the matter of pollution of the Menominee River in the Menominee, Michigan-Marinette, Wisconsin Area. The Enforcement Section played an active role in the development of a reconnaissance survey and field study leading to a Pollution Report, which was one of the bases for the Secretary's action. The Section personnel also took an active part in the Conference.

In response to the requests of the Governors of Wisconsin and Minnesota, a Conference was held on February 7-8, 1964 regarding pollution of the Upper Mississippi River in the Twin Cities, Minnesota-Wisconsin Area. The Enforcement Section again played an active role in preparing for the Conference and participating in the Conference. A Project study of the area was initiated as a result of the Conference.

At the request of the State of Illinois, the PHS Regional Office presented statements on the federal position and interests in the Clinton Enforcement Area at the State Hearings on pollution of the Mississippi River by the City of Moline, Illinois and Village of Port Byron, Illinois. Subsequently the citizens of Moline approved a general obligation bond issue, by a margin of ten to one, to provide sewage treatment. The amount of the bond issue was $1,300,000.00.

At the request of the Area Redevelopment Administration, technical assistance was rendered to the Area Redevelopment Administration and the Wisconsin Committee on Water Pollution in devising a method of waste treatment for a proposed fiberboard manufacturing plant at Superior, Wisconsin.

The PHS Robert A. Taft Sanitary Engineering Center provided technical assistance, through the efforts of the Enforcement Section, to the State of Wisconsin in the form of surveys on Lake Koshkonong at the request of Senator Proxmire, and on the Oconto River at the request of Governor Reynolds.

The Enforcement Section also had an active role in the Robert A. Taft Sanitary Engineering Center survey on the St. Joseph River January 31 to February 6, 1964, immediately after the bypass of raw sewage by the City of South Bend, Indiana. Significant survey data were presented at the Indiana Stream Pollution Control Board hearing on May 6 and 7, 1964 by SEC personnel through the Indiana Stream Pollution Control Board request to the regional office.

ENFORCEMENT

WORK PLAN - FISCAL YEAR 1965

Reports Programmed

Factual water quality reports are prepared periodically on all significant interstate and navigable streams in the Region. For fiscal year 1964, it is planned to submit five such reports to Headquarters. Included in the preparation of these reports is the factual presentation of water quality conditions. Where these data are not available, the need for such information is established. Water use damages, both existing and potential, are outlined.

Surveys

Water quality reports based upon preliminary visits, field surveys, and studies will be developed for those areas having significant interstate pollution. Technical personnel from the Robert A. Taft Sanitary Engineering Center, and possibly from the Great Lakes-Illinois River Basins Project, the Detroit River-Lake Erie Project, or the Twin Cities-Upper Mississippi River Project will be called upon for necessary consultative or field services in connection with the required surveys. Staff interest and participation will be maintained in the Detroit River-Lake Erie Project and the Twin Cities-Upper Mississippi River Project.

Actions

The Federal Water Pollution Control Act defines responsibilities in enforcement that are discharged through appropriate Conference, Hearing, or Court Action procedures. These are positive demonstrations of pollution control. Any enforcement action taken in Region V is based upon a careful review of the summary reports and any results from such field surveys or study reports that may be made. It is important to emphasize that the calling of any enforcement action under the Act is the sole prerogative of the Secretary.

Progress Meetings

After every enforcement action, reports on progress are scheduled on a periodic basis. For Fiscal Year 1965, progress meetings or reports are scheduled for the Clinton, Iowa - Mississippi River area (Iowa-Ill.), Detroit Metropolitan area (Michigan), the St. Louis Metropolitan - Mississippi River area (Ill.-Mo.), the Menominee River area (Wisc.-Mich.), and the Twin Cities area (Minn.-Wisc).

Federal Installations

Pollution abatement at Federal Installations will continue to have a high priority, since responsiveness to water pollution control on the part of private, municipal, industrial, or other waste contributors cannot be allowed to be influenced by Federal Installations having either no treatment, inadequate treatment, or even improper operation. Some 211 Federal Installations discharge treated or untreated domestic and industrial wastes into the surface waters of Region V. Approximately 108 of these installations have significant waste discharges, whether treated or untreated. Initial investigation of these 108 installations will be completed during Fiscal Year 1965. Revised reports will be prepared for each installation where remedial action is taken.

Information Activities

A public awareness program must be positive. Graphics on fish kills as a result of pollution, enforcement actions, federal installations pollution control status, etc. will be explored and, if feasible, developed as an integral part of such a program. Where indicated and practical, aerial surveys and films of a study area will be considered for use in orientation and possible presentation at a Conference or Hearing.

ENFORCEMENT ACTIVITIES

LEGEND-

★ - CONFERENCE AREAS

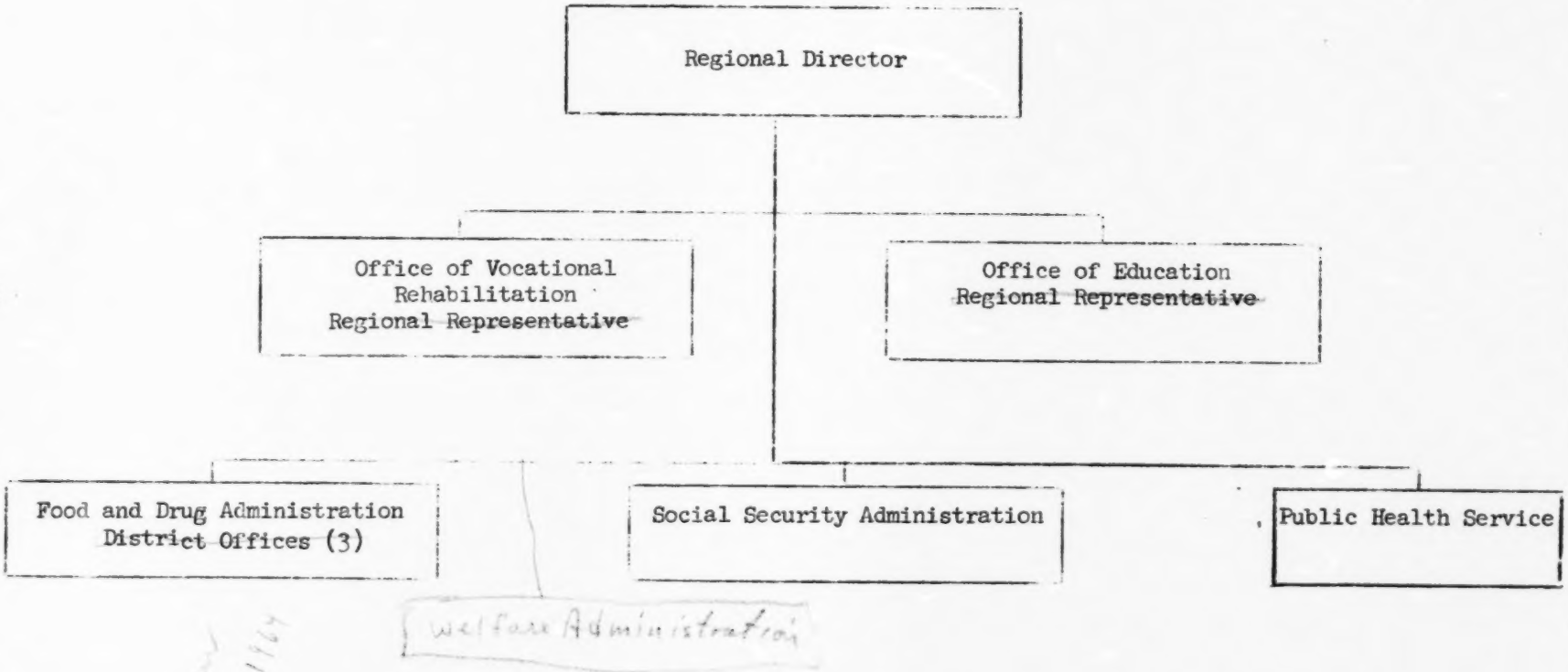
FIGURE 9

ORGANIZATION

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

REGION V - CHICAGO

FUNCTIONAL ORGANIZATION CHART

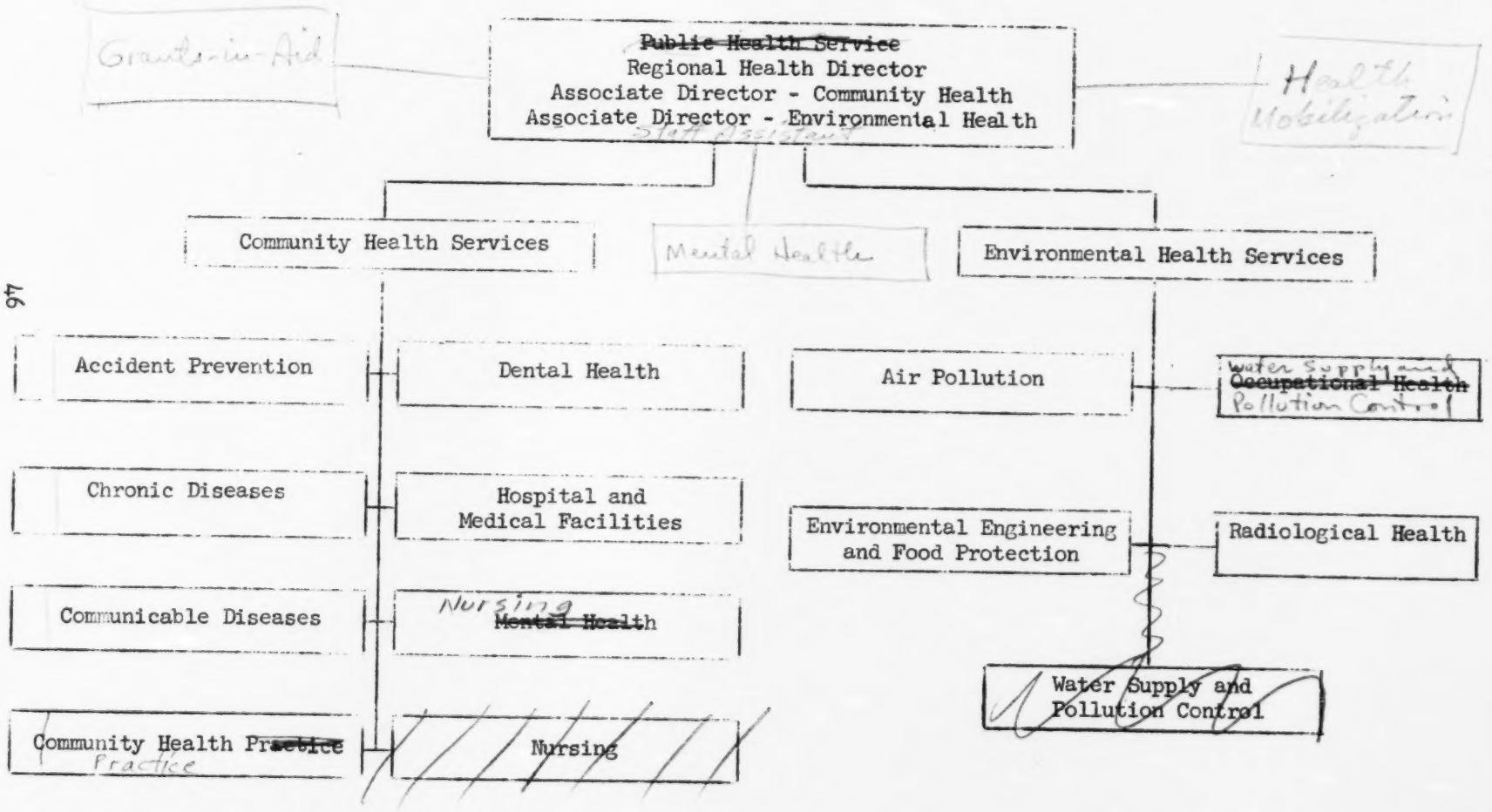


PUBLIC HEALTH SERVICE

REGION V - CHICAGO

FUNCTIONAL ORGANIZATION

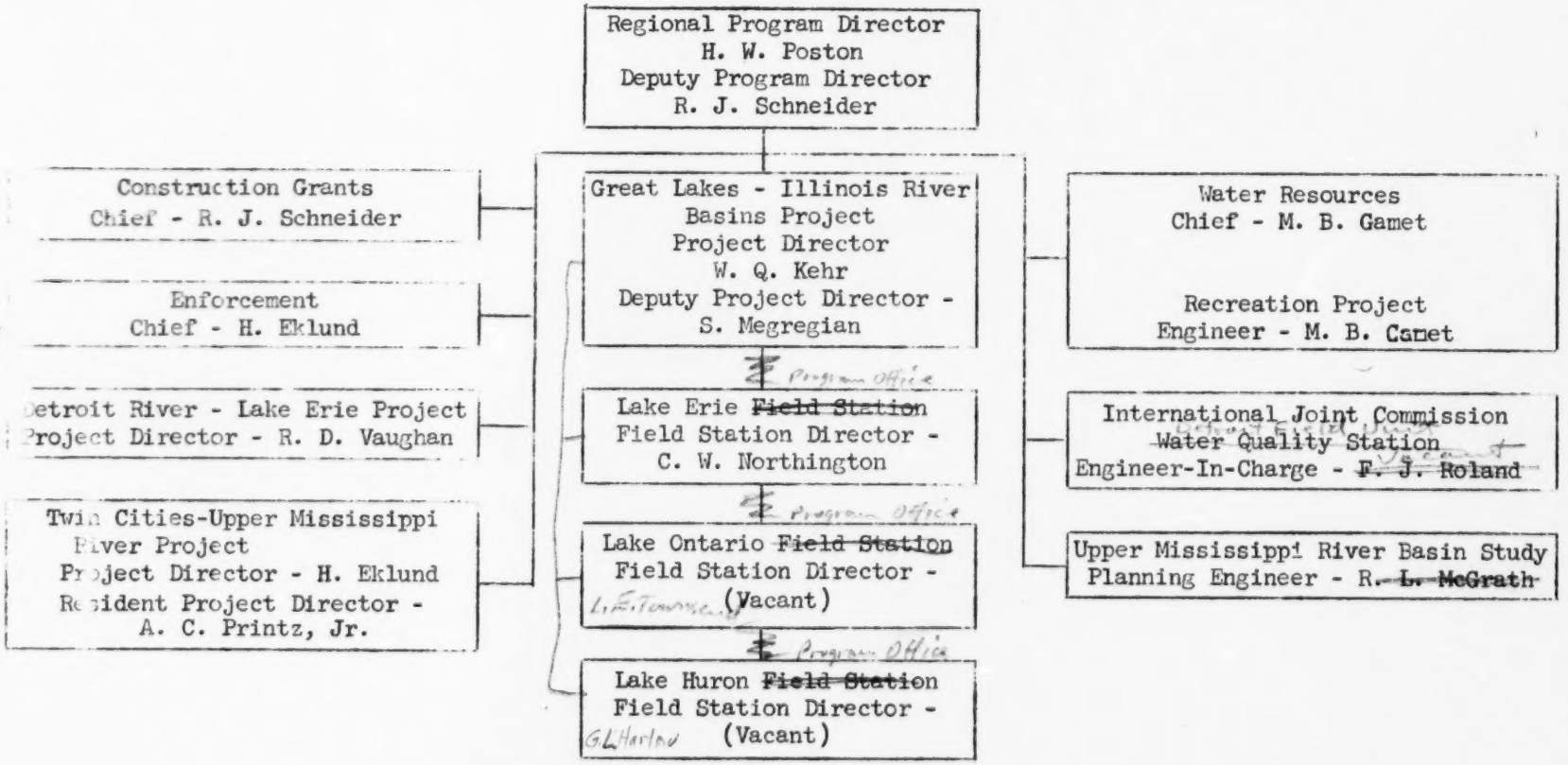
~~OPERATING DIVISIONS~~



DIVISION OF WATER SUPPLY AND POLLUTION CONTROL

REGION V - CHICAGO

ADMINISTRATIVE ORGANIZATION



DIVISION OF WATER SUPPLY AND POLLUTION CONTROL

REGION V - CHICAGO

FUNCTIONAL ORGANIZATION